Ohio Administrative Code
Rule 901:3-3-04 Equipment and Procedures for Pressure Processing in Water in Still Retorts.
Effective: April 28, 2003

(A) Each retort shall be equipped with at least one mercury-in-glass thermometer.

(1) Thermometer divisions are to be easily readable to one degree Fahrenheit and the temperature range shall not exceed seventeen degrees Fahrenheit per inch of graduated scale.

(2) Thermometers shall be tested for accuracy against a known accurate standard thermometer upon installation and at least once a year thereafter, to ensure their accuracy.

(3) A thermometer that has a divided mercury column or that cannot be adjusted to the standard shall be repaired or replaced before further use of the retort.

(4) Thermometers shall be installed where they can be accurately and easily read. Bulbs of indicating thermometers shall be located in such a position that they are beneath the surface of the water throughout the process. On horizontal retorts, the thermometer bulbs shall be inserted directly into the retort shell. In both vertical and horizontal retorts, the thermometer bulbs shall extend directly into the water a minimum of at least two inches without a separable well or sleeve.

(5) The mercury thermometer shall be the reference instrument for indicating the processing temperature. The recorder chart shall not be used for this purpose.

(B) Temperature-recording device.

(1) Each still retort shall have an accurate temperature-recording device. Graduations on the temperature-recording devices shall not exceed two degrees Fahrenheit within a range of ten degrees Fahrenheit of the processing temperature.

(2) Each temperature chart shall have a working scale of not more than fifty-five degrees Fahrenheit per inch within a range of twenty degrees Fahrenheit of the processing temperature. The temperature
chart shall be adjusted to agree as nearly as possible with, but to be in no event higher than, the known accurate mercury-in-glass thermometer during the process time.

(3) A means of preventing unauthorized changes in adjustment of the temperature recording device shall be provided.

(4) The temperature recording device may be combined with the steam controller and may be a recording-controlling instrument. In the case of a vertical retort equipped with a combination recorder-controller, the temperature recorder-control bulb shall be located at the bottom of the retort below the lowest crate rest in such a position that the steam does not strike it directly. In horizontal retorts, the temperature recorder-control bulb shall be located between the water surface and the horizontal plane passing through the center of the retort so that there is no opportunity for direct steam impingement on the control bulb.

(C) Steam controller.

Each retort shall be equipped with an automatic steam controller to maintain the retort temperature.

(D) Steam introduction.

Steam shall be distributed in the bottom of the retort in a manner adequate to provide uniform heat distribution throughout the retort. In horizontal retorts, the steam distributor shall run the length of the bottom of the retort with perforations distributed uniformly along the upper part of the pipe.

(E) Crate supports.

(1) A bottom crate support shall be used in vertical still retorts.

(2) Baffle plates shall not be used in the bottom of the retort.

(F) Stacking equipment and position of containers.

Crates, trays, gondolas, and similar items used to hold containers shall be made of strap iron,
adequately perforated sheet metal, or other suitable material. The positioning of containers in the retort, when specified in the scheduled process, shall be in accordance with that process. Dividers, racks, trays, or other means of positioning of flexible containers shall be designed and employed to ensure even circulation of heating medium around all containers in the retort.

(G) Drain valve.

A non-clogging, water-tight valve shall be used.

(H) Water level indicator.

(1) There shall be a means of determining the water level in the retort during operation, by using a gage, water glass, or petcock.

(2) Water shall cover the top layer of containers during the entire come-up-time and processing periods.

(3) The operator shall check and record the water level at intervals sufficient to ensure its adequacy.

(I) Air supply and controls.

In both horizontal and vertical still retorts for pressure processing in water, a means shall be provided for introducing compressed air at the proper pressure and rate.

(1) The proper pressure shall be controlled by an automatic pressure control unit.

(2) A check valve shall be provided in the air supply line to prevent water from entering the system.

(3) Air or water circulation shall be maintained continuously during the come-up-time and during processing and cooling periods.

(4) The adequacy of the air or water circulation for uniform heat distribution within the retort shall be established in accordance with procedures recognized by a processing authority and records shall
be kept on file.

(5) If air is used to promote circulation, it shall be introduced into the steam line at a point between the retort and the steam control valve at the bottom of the retort.

(J) Water circulation.

When a water circulating system is used for heat distribution, it shall be installed in such a manner that water will be drawn from the bottom of the retort through a suction manifold and discharged through a spreader which extends the length of the top of the retort.

(1) The holes in the water spreader shall be uniformly distributed.

(2) Debris shall be prevented from entering the circulating system.

(3) The pump shall be equipped with a pilot light or other signaling device to warn the operator when it is not running, and with a bleeder to remove air when starting operations.

(4) Alternative methods for circulation of water in the retort may be used when established as adequate for even heat distribution.

(K) Critical factors.

Critical factors specified in the scheduled process shall be measured and recorded on the processing record at intervals of sufficient frequency to ensure that the factors are within the limits specified in the scheduled process as follows:

(1) When maximum fill-in or drained weight is specified in the scheduled process, it shall be measured and recorded at intervals of sufficient frequency to ensure that the weight of the product does not exceed the maximum for the given container size specified in the scheduled process.

(2) Closing machine vacuum in vacuum-packed products shall be observed and recorded at intervals of sufficient frequency to ensure that the vacuum is as specified in the scheduled process.
(3) When the product style results in stratification or layering of the primary product in the containers, the positioning of containers in the retort shall be according to the scheduled process.